CHAPTER 6

ASPHALT ROLL ROOFING

Section I. DESCRIPTION AND GENERAL DISCUSSION

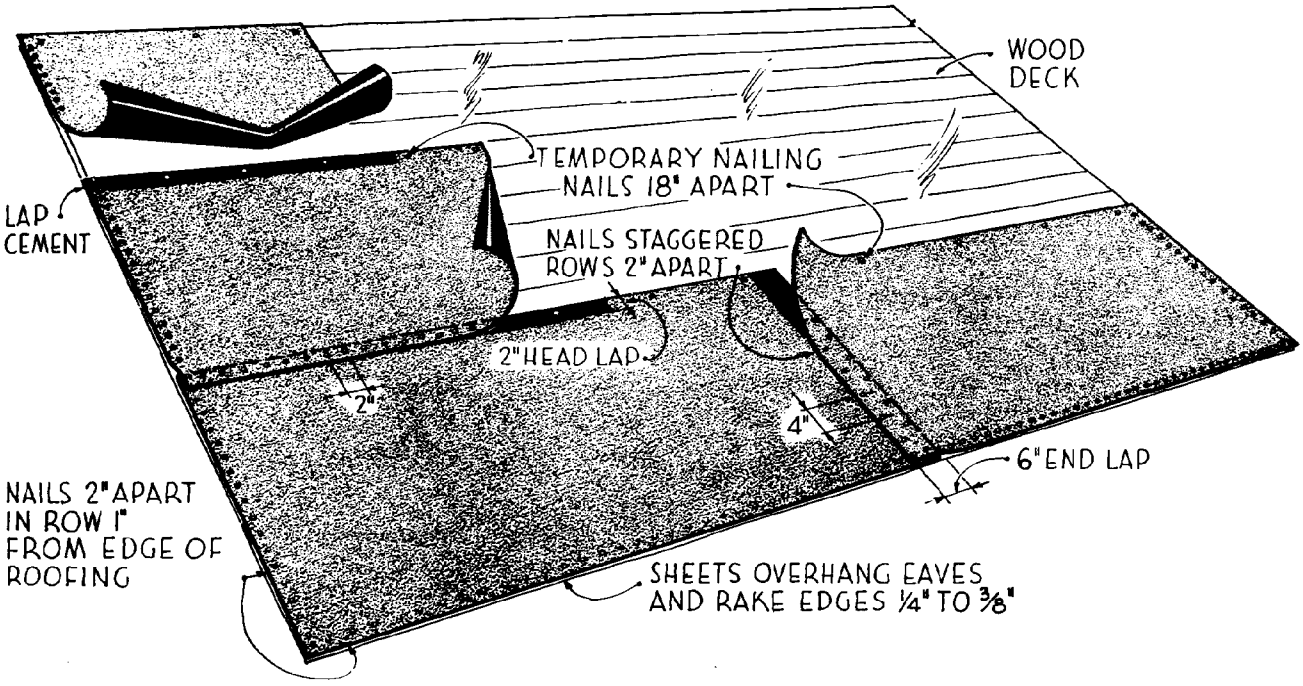

Figure 32. Exposed nail application of roll roofing parallel to the eaves.

6.1.1 General

Asphalt roll roofing is roofing in sheet form composed of roofing felt saturated, and coated on both sides, with asphalt which generally contains fine mineral stabilizer. Asphalt roll roofing is available smooth-surfaced or mineral surfaced.

6.1.2 Smooth-Surfaced

Smooth-surfaced roll roofing is not as durable as mineral-surfaced roll roofing and is normally not used as single layer roofing on military structures. It should only be used on temporary structures where the roofing will be expected to last only for a relatively short time. Application is usually by the exposed nail method with 2 inch cemented laps. It may, however, be laid by the concealed nail method with cemented laps not less than 3 inches wide.

6.1.3 Mineral-Surfaced

Mineral-surfaced roll roofing is composed of organic, glass fiber, or asbestos roofing felt. It is surfaced on the weather side with mineral granules embedded in the asphalt coating. The nonweather side may be dusted with fine mineral matter to prevent sticking. Mineral-surfaced roll roofing is marketed in rolls 36 feet long, in the following styles: with the entire surface covered with granules; with a 2- or 4-inch bare lapping edge; and with a 19-inch bare lapping edge, the latter being distinguished as "wide-selvage" roofing. Roofing with the entire surface covered with granules is intended to be laid with a 2-inch lap and exposed nails (fig. 32). Those roofings with bare lapping edges are intended to be laid with cemented laps the width of the lapping edge and with "blind" nailing, that is, with one edge of the sheet of

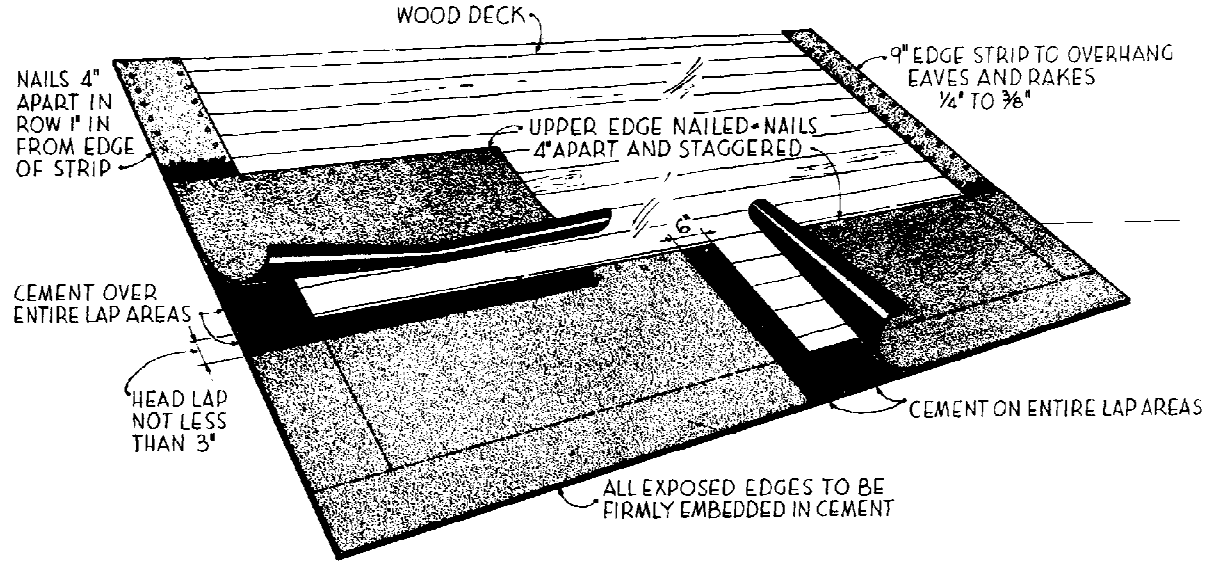

Figure 33. Application of roll roofing by concealed nail method parallel to the eaves.

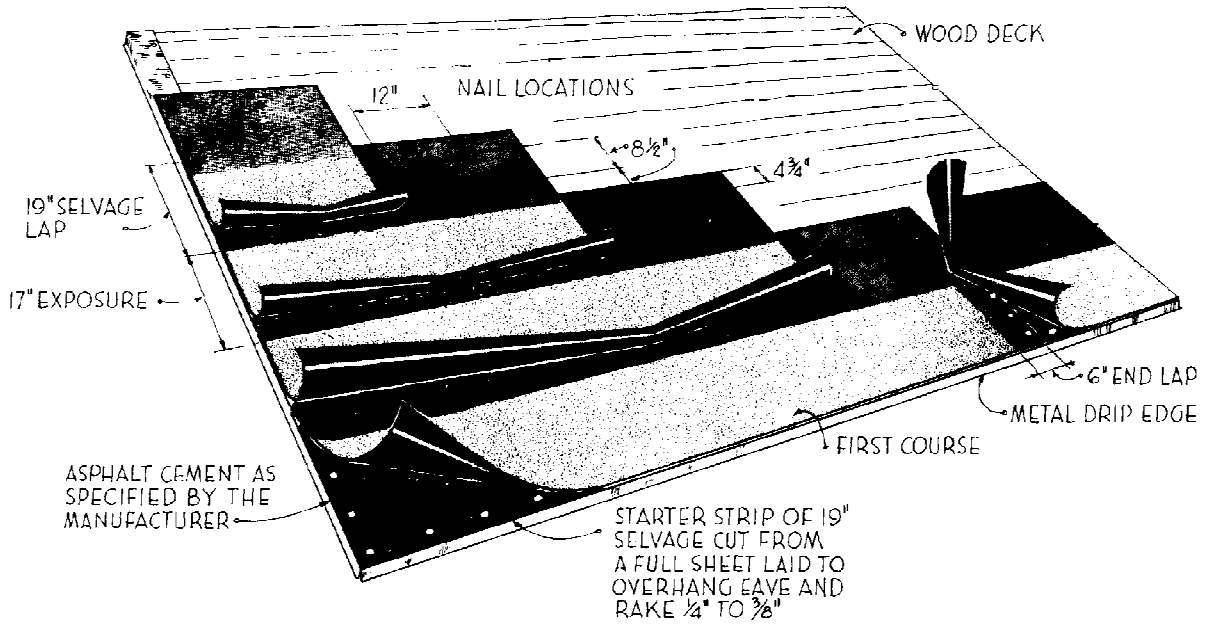

Figure 34. Application of double coverage (wide selvage) roll roofing parallel to the eaves.

roofing nailed and the other fastened only with cement, the nails being covered by the cemented lap (fig. 33). This method of application is preferred because it largely eliminates the "popping out" common with exposed nails. Wide-selvage roofing(fig. 34) provides double coverage over the entire roof area. The wider the lap, the better the service that may be expected from the roofing. Either hot asphalt or cold application asphalt adhesive is used for cementing wide-selvage roofing. Mineral-surfaced roll roofing lapped not more than 4 inches and with laps cemented may be used on slopes of 3 inches or more per foot; wide-selvage roofing may be used on slopes as low as 2 inches per foot. For emergency construction these slopes may be reduced to 2 inches per foot and 1 inch per foot, respectively. See table 1. With all types of roll roofing, the steeper the slope, the better the service that may be expected, both in waterproofness and weather resistance.

6.1.4 Fire Resistance Rating

Mineral-surfaced roll roofings and smooth-surfaced asbestos-felt roll roofings qualify for the class C fire resistance rating of the Underwriters' Laboratories Inc., which indicates that they are effective against light fire exposures. Asbestos-felt sheet coverings are available which qualify for class B and class A fire resistance rating which indicates that they are effective against moderate and severe fire exposure, respectively.

Section II. ROOF DECKS FOR ASPHALT ROLL ROOFING ROOFS

Roof decks for asphalt roll roofing roofs should be the same as for asphalt-shingle roofs (chap 5, sec II).

Section III. STORAGE AND HANDLING OF ASPHALT ROLL ROOFING

Asphalt roll roofing should be handled carefully at all times, but particularly during extremes of temperature. It is softened at high temperatures and embrittled at low temperatures. Asphalt roll roofings stored in warehouses or on the job should be stood on end off the ground. If several tiers are to be stored one on top of the other, boards should be placed between the tiers to prevent damage to the ends of the rolls. Roll roofings stored on the job must be protected from the weather.

Section IV. DETERMINING TREATMENT FOR ASPHALT ROLL ROOFING ROOFS

6.4.1 Leaky Seams

Leaks at the seams of smooth and mineral-surfaced roll roofings, applied with 2-inch laps and exposed nails, are the most common roll roofing failure. These leaks are caused principally by inadequate lapping, cementing or nailing of the roofing, buckling of the roofing at the seams, and loose nails.

6.4.2 Smooth-Surfaced

Smooth-surfaced asphalt roll roofings, being used normally under austere circumstances, should receive only the minimum amount of maintenance or repair that will keep them leakproof. The first effect of normal weathering on smooth-surfaced roll roofing is the loss of the fine mineral matter used to prevent sticking in the rolls. The coating asphalt, being exposed directly to the weather, deteriorates more rapidly than that of mineral-surfaced roofing. Recoating with clay-type asphalt emulsion or other suitable coating is usually required within 3 to 5 years. Recoating will be required earliest in hot, humid areas and on buildings such as kitchens and washrooms where excessive moisture conditions prevail.

6.4.3 Mineral-Surfaced

Weathering of mineral-surfaced roll roofing is similar to that of asphalt shingles, that is, normal weathering proceeds slowly and is first evidenced by the loss of granular surfacing. Recoating of mineral-surfaced roll roofing is not generally recommended though it has been used successfully to extend the life of a roof when reroofing was not justified.

Section V. MAINTENANCE METHODS—ASPHALT ROLL ROOFING

6.5.1 Recoating Smooth-Surfaced Roll Roofings

Smooth surfaced roll roofing that has been exposed from 3 to 5 years will usually show one or more of the following conditions that indicate a need for recoating: Asphalt coating alligatored or cracked, small coating blisters cracked and broken and other small breaks in the coating that expose the felt; Minor hail or other impact damage, where the asphalt coating is damaged but the felt remains intact, also indicates a need for recoating. To treat smooth-surfaced roll roofing remove all loose dust and dirt by sweeping, vacuuming or air blast. Apply clay-type asphalt emulsion or asphalt-base roof coating as described in paragraph 4.5.3.3.2 except that the coating of asphalt primer should be omitted in all but the most severely weathered roofings. For methods of making minor repairs before the recoating operation, see paragraphs 6.6.1 through 6.6.4.2.

6.5.2 Recoating Mineral-Surfaced Roll Roofings

Because of the protection afforded by the mineral-surfacing granules, mineral-surfaced roll roofing weathers much more slowly than the smooth-surfaced type, and, consequently, requires less maintenance. As with asphalt-shingle roofing, by the time deterioration through loss of granules becomes serious, the condition of the roofing will be normally such, through brittleness and general deterioration, that recoating will not be desirable. However, in cases where the future use of a building is in doubt, mineral-surfaced roofs may be recoated as described for smooth-surfaced roofs. Mineral-surfaced roll roofing that has been in place not more than half the period it is expected to serve, but has been damaged by hail, should be recoated if the damage consists of loss of mineral surfacing without breaks in the felt.

Section VI. REPAIR METHODS—ASPHALT ROLL ROOFINGS

Since repair methods for smooth- and mineral-surfaced roll roofings are identical, they are treated together in this section.

6.6.1 Small Breaks

Nail holes and small breaks caused by hail or other mechanical damage, if limited in number, should be repaired by applying asphalt plastic cement that meets with Federal Specification SS-C-153, Type I, Class A — summer grade or Class B — winter grade.

6.6.2 Large Breaks

Large breaks are repaired as illustrated in figure 35, by opening the horizontal seam below the break and inserting through it a strip of roofing of the type used originally. Extend the strip at least 6 inches beyond the edges of the break, with the lower edge flush with the horizontal exposed edge of the covering sheet. Coat the strip liberally with lap cement where it will come in contact with the covering sheet before inserting it. After inserting the strip, press down the edges of the roofing firmly and nail securely with the nails about ¾ inch from the edges and spaced approximately 2 inches. Apply lap cement to the horizontal seam, press down firmly and renail if the original seam was nailed.

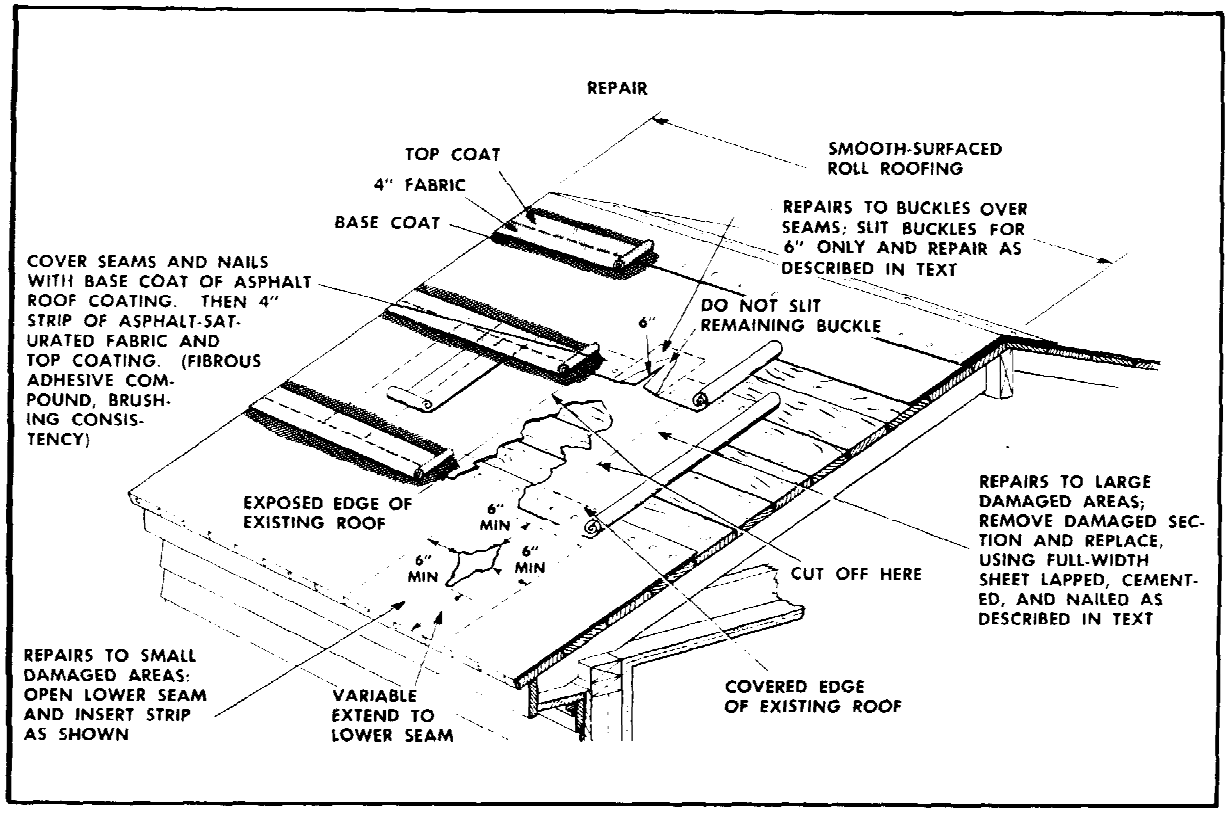

Figure 35. Repairing asphalt roll roofing.

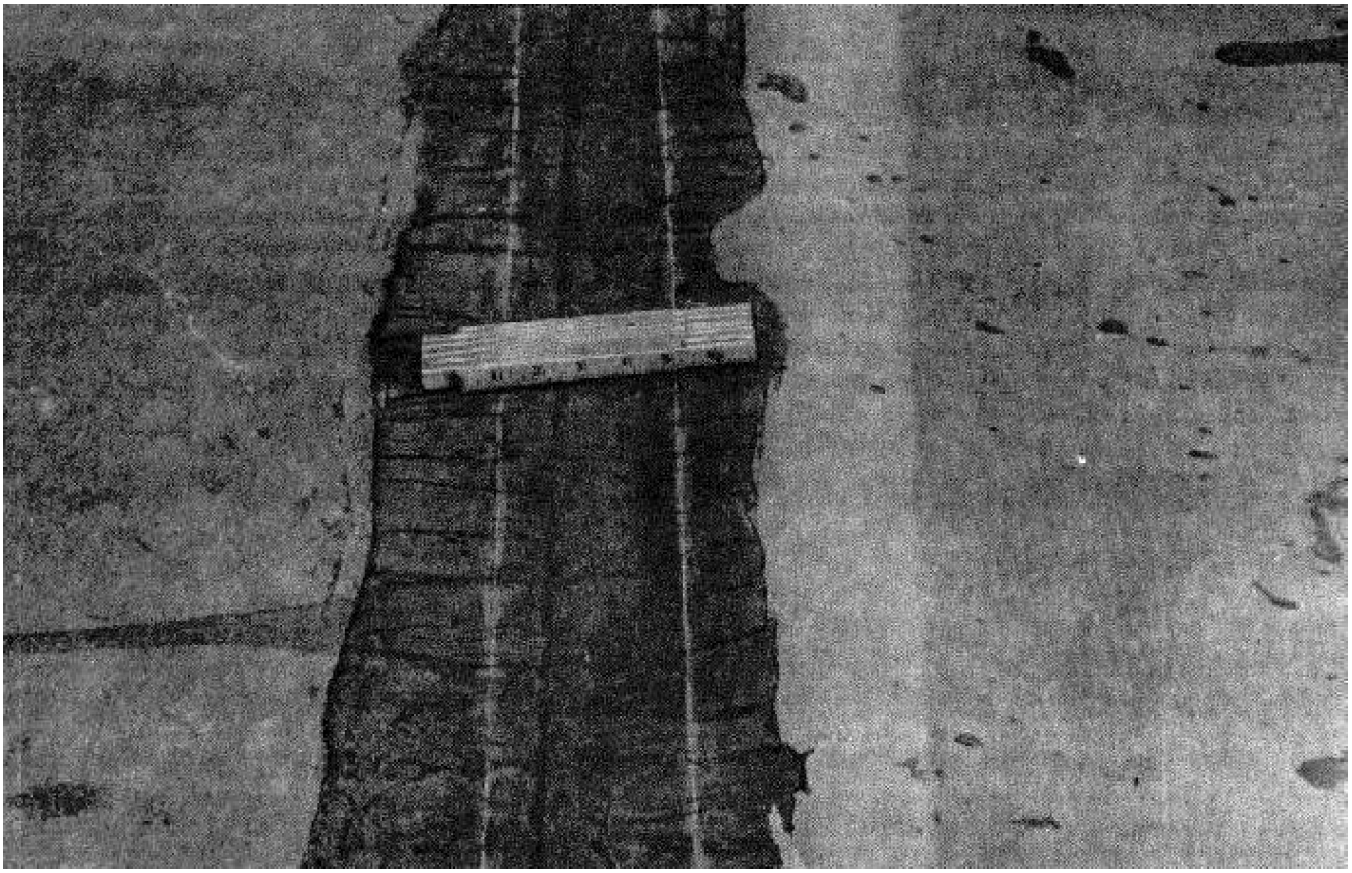

Figure 36. Closeup view — repaired roll roofing seam.

6.6.3 Large Areas

Where a considerable area has been damaged, but the main area of the roof remains intact, remove the roofing from the damaged area and apply new roofing of the same type, using full-width sheets applied in the same manner as the original roofing.

6.6.4 Repairing Leaky Seams of Roll Roofing

Other necessary repairs should be made prior to repairing the seams by two methods below. Leaks occur most frequently at the seams of roll roofing, caused by inadequate lapping, nailing or cementing, loose nails, and fishmouths.

6.6.4.1 For an Expected use of not More Than 1 Year. Sweep the seams to remove accumulated dust and dirt, cut all buckles (fishmouths) which terminate at the seams, and insert a strip of roofing as described in paragraph 6.6.2. Renail where necessary. Apply asphalt plastic cement complying with Federal Specification SS-C-153, Type I, Class A — summer grade or Class B — winter grade to the seams, using a trowel to feather the edge of the cement at the top of the strip. Approximately 6 pounds of cement are required per square of roofing.

6.6.4.2 For an *Expected use of More than 1 Year*. Permanent repairs to leaky seams of roll roofing roofs are best effected by using a membrane such as asphalt saturated woven cotton fabric (ASTM Specification D173), woven glass fabric (Federal Specification SS-R-620), or light weight, smooth-surfaced roll roofing (ASTM Specification D224), cemented over the seam and coated with a bituminous compound conforming to Federal Specification SS-A-694 (fig. 36). Apply the coating to the seams in strips approximately 6 inches wide using approximately one gallon per 80 lineal feet of seam. Embed a 4-inch strip of saturated fabric in the coating, pressing it firmly into the coating until it lies flat without wrinkles or buckles; the center of the fabric must be directly over the exposed edge of the roofing. Then apply another coat of coating directly over the strip of saturated fabric so the fabric is completely covered and the first and second coatings are continuous. The seams must be maintained by recoating with the same material every 2 or 3 years.

Section VII. REROOFING WITH ROLL ROOFING

Preparation of the roof deck for reroofing with roll roofings when the existing roofing is removed or over existing roll roofing, asphalt-shingle, or wood-shingle roofs is identical with that described for reroofing with asphalt shingles. See chapter 5, section VI, entitled "Re-roofing With Asphalt Shingles." Roll roofings should be applied in accordance with current specifications for new construction except that, when applying roll roofings over existing asphalt-shingle, roll roofing or wood-shingle roofs, 1¾ inch nails should be used. Roll roofing should be cut into 12 to 18 foot lengths and laid out on a flat surface to lose its "roll" prior to application. Detailed information on the application of roll roofings is available in the publication entitled "Manufacture, Selection and Application of Asphalt Roofing and Siding Products," published by the Asphalt Roofing Manufacturing Association, 757 Third Avenue, New York, New York 10007.